

A-1 TEMPORARY MULCHING**PURPOSE & APPLICATIONS**

Temporary mulching is the application of plant residues or other suitable materials to the soil surface. Its purpose is to prevent erosion by protecting the exposed soil surface and to aid in the growth of vegetation by conserving available moisture, controlling weeds, and providing protection against extreme heat and cold. Mulches can also protect the infiltration rate of the soil, prevent soil compaction, and provide a suitable microclimate for seed germination. This is the quickest and most cost effective method of controlling runoff and erosion on disturbed soils and its value should not be underestimated.

CONSIDERATIONS

- In sensitive areas (within 100 ft of streams, wetlands and in lake watersheds) temporary mulch must be applied **within 7 days of exposing soil or prior to any storm event.**
- Areas, which have been temporarily or permanently seeded, shall be mulched immediately following seeding.
- Areas which cannot be seeded within the growing season shall be mulched for over-winter protection and the area should be seeded at the beginning of the growing season.
- Mulch can be used in conjunction with tree, shrub, vine, and ground cover plantings.
- Mulch anchoring should be used on slopes greater than 5% in late fall (past September 15), and over-winter (September 15 - April 15).

SPECIFICATIONS

The choice of materials for mulching will be based on soil and site conditions, season, and economics.

Type of Mulch**Hay or Straw Mulches**

Organic mulches including hay and straw need to be air-dried, free of undesirable seeds and coarse materials. Application rate must be 2 bales (70-90 pounds) per 1000 SQ FT or 1.5 to 2 tons (90-100 bales) per acre to cover 75 to 90 % of the ground surface. Hay mulch is subject to wind blowing unless kept moist or anchored. See the detail drawing at the back of this section.

Anchoring methods:

Netting over hay with jute, wood fiber or plastic netting to soil surface. Staple mats according to manufacturer's recommendation.

Peg and Twine: After mulching with hay, drive 4-6 pegs per sq. yd in size to within 2-3 in. of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern. Secure around each peg with two or more turns. Drive pegs flush with soil where mowing is planned.

Tracking: Apply hay mulch and drive tracked equipment up and down slope over entire surface so cleat marks are parallel to contour lines. Tracking is suitable for areas less than 3% and not subject to wind blowing.

Erosion Control Mix

Erosion control mix can be manufactured on or off the project site. It must consist primarily of organic material and will include any of the following: shredded bark, stump grindings, composted bark or other acceptable products based on a similar raw source. Wood or bark chips, ground construction debris or reprocessed wood products will not be acceptable as the organic component of the mix.

It can be used as a stand-alone reinforcement:

- On slopes 2 horizontal to 1 vertical or less.
- On frozen ground or forested areas.

- At the edge of gravel parking areas and areas under construction.

Other reinforcement BMPs (i.e. riprap) should be used:

- On slopes with groundwater seepage;
- At low points with concentrated flows and in gullies;
- At the bottom of steep perimeter slopes exceeding 100 feet in length;
- Below culvert outlet aprons; and
- Around catch basins and closed storm systems.

Composition

Erosion control mix shall contain a well-graded mixture of particle sizes and may contain rocks less than 4" in diameter. Erosion control mix must be free of refuse, physical contaminants, and material toxic to plant growth. The mix composition shall meet the following standards:

- The organic matter content shall be between 80 and 100%, dry weight basis.
- Particle size by weight shall be 100 % passing a 6" screen and a minimum of 70 %, maximum of 85%, passing a 0.75" screen.
- The organic portion needs to be fibrous and elongated.
- Large portions of silts, clays or fine sands are not acceptable in the mix.
- Soluble salts content shall be < 4.0 mmhos/cm.
- The pH should fall between 5.0 and 8.0.

Installation

When used as mulch, the length and steepness of the slope determine the appropriate thickness of the erosion control mix. **Erosion control mix is not recommended for slopes steeper than 2:1.** For other slopes, the following minimums apply:

On slopes of 3:1 or less; 2 inches plus an additional 1/2 inch per 20 feet of slope up to 100 feet;
On slopes between 3:1 and 2:1, 4 inch plus an additional 1/2 inch per 20 feet of slope up to 100 feet.

The thickness of the mulch at the bottom of the slope needs to be:

	< 3:1 slope	slopes between 3:1 and 2:1
< 20' of slope	2.0"	4.0"
< 60' of slope	3.0"	5.0"
< 100' of slope	4.0"	6.0"

- The mulch may be placed with a hydraulic bucket, with a pneumatic blower or by hand.
- It shall be placed evenly and must provide 100 % soil coverage, with the soil totally invisible.

Any required repairs should be made immediately, with additional erosion control mix placed on top of the mulch to reach the recommended thickness. When the mix is decomposed, clogged with sediment, eroded or ineffective, it must be replaced or repaired. Erosion control mix mulch should be left in place. Vegetation adds stability and should be promoted. If the mulch needs to be removed spread it out into the landscape.

Chemical Mulches and Soil Binders

Wide ranges of synthetic, spray-on materials are marketed to protect the soil surface. These are emulsions that are mixed with water and applied to the soil. They may be used alone, but most often are used to hold wood fiber, hydro-mulches or straw to the soil surface. Consult with the manufacturer to determine adequate application rates, especially for steep slopes and fall applications. Avoid application during windy days. A 24-hour curing period at a soil temperature higher than 45 degrees Fahrenheit is often required. Application should generally be heaviest at edges of areas and at crests of ridges and banks to prevent loss by wind. The remainder of the area should have binder applied uniformly. Binders may be applied after mulch is spread or may be sprayed into the mulch as it is being blown onto the soil. Applying straw and binder together is more effective. Seeding rates frequently need to be increased when using this method.

When used alone, chemical mulches do not have the capability that organic mulches have to insulate the soil or retain soil moisture. Chemical mulches generally decompose in 60-90 days.

Erosion Control Blankets and Mats

Mats are manufactured combinations of mulch and netting designed to retain soil moisture and modify soil temperature. See the detail drawing located at the back of this section.

During the growing season (April 15 - September 15) use mats (or mulch and netting) on:

- the base of grassed waterways
- steep slopes (15% or greater)
- any disturbed soil within 100 feet of lakes, streams and wetlands

During the late fall and winter (September 15 - April 15) use heavy grade mats on all areas noted above plus use lighter grade mats (or mulch and netting) on:

- side slopes of grassed waterways
- moderate slopes (>>8%)

NOTE: *There may be cases where mats will be needed on slopes flatter than 8%. Also, this will vary with the length of the slope.*

The most critical aspect of installing mats is obtaining firm continuous contact between the mat and the soil. Without such contact the mat is useless and erosion occurs. Install mats and staple in accordance with the manufacturer's recommendations.

Installation

Apply mulch prior to any storm event. This is applicable in extremely sensitive areas such as within 100 feet of lakes, ponds, rivers, streams, and wetlands. It will be necessary to closely monitor weather predictions to have adequate warning of significant storms.

Require mulching within a specified time period (from original soil exposure)

This time period should be no greater than 7 days in extremely sensitive areas (within 100 feet of rivers and streams, wetlands, and in lake and pond watersheds. This 7-day limit should be reduced further if possible.

In other areas, the time period can range from 14 to 30 days, the length of time varying with site conditions (soil erodibility, season of year, extent of disturbance, proximity to sensitive resources, etc.) and the potential impact of erosion on adjacent areas. Other state or local restrictions may also apply.

This approach is easier to plan for and execute, however it may result in exposing the site to major storm events that occur during that 7-day period of exposed soil.

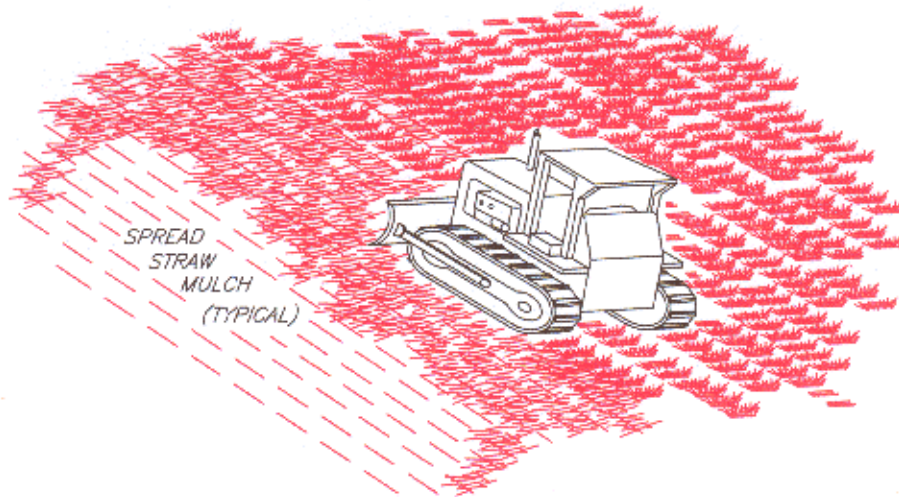
Guidelines for Fall/Winter Mulch Application

When mulch is applied to provide protection over winter (past the growing season), it should be applied to a depth of four inches (150-200 lbs. of hay per 1000 sq. ft or double standard application rate). Seeding cannot generally be expected to grow up through this depth of mulch and will be smothered. If vegetation is desired, the mulch will need to be removed in the springtime and the area seeded and mulched.

MAINTENANCE

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets must be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Inspections shall take place until grasses are firmly established (95% soil surface covered with grass).

Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.



*'TRACKING' WITH MACHINERY ON
SANDY SOIL PROVIDES ROUGHENING
WITHOUT UNDUE COMPACTION.*

STRAW ANCHORING

NOTES:

1. ROUGHEN SLOPE WITH BULLDOZER
2. BROADCAST SEED AND FERTILIZER.
3. SPREAD STRAW MULCH 3" (75mm) THICK. (2 1/2 TONS PER ACRE)
4. PUNCH STRAW MULCH INTO SLOPE BY RUNNING BULLDOZER UP AND DOWN SLOPE.

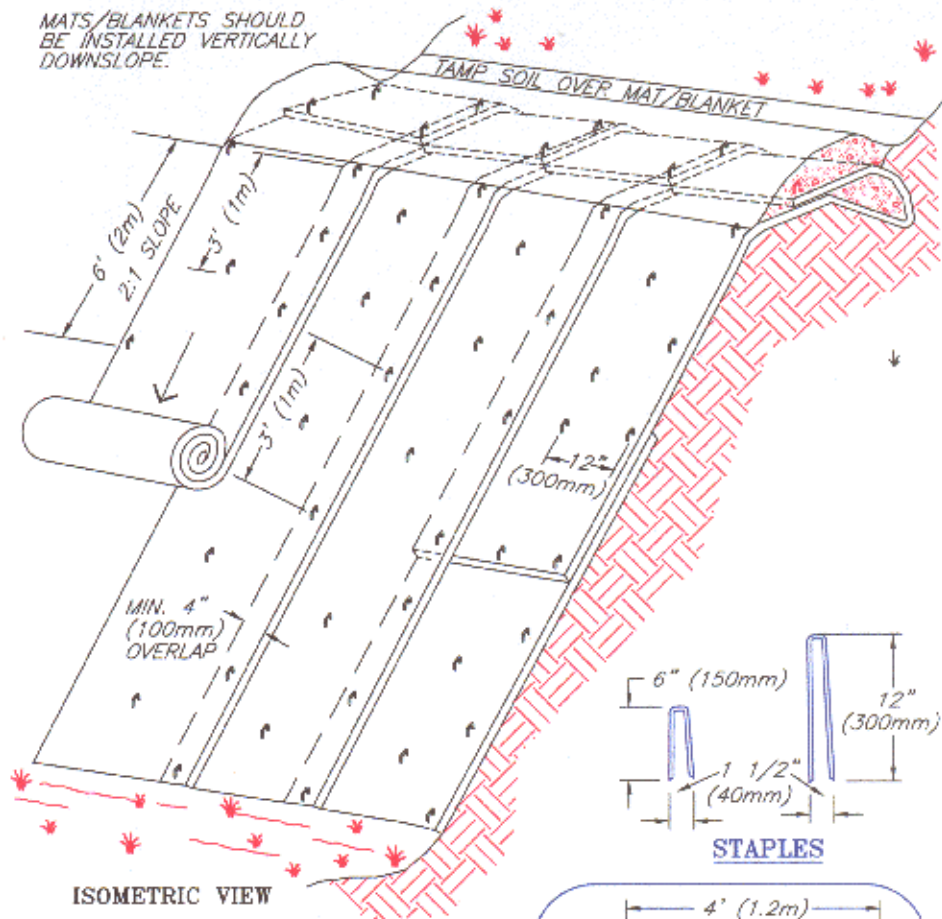
STRAW ANCHORING

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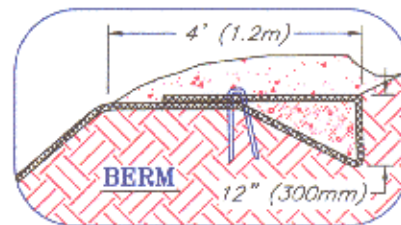
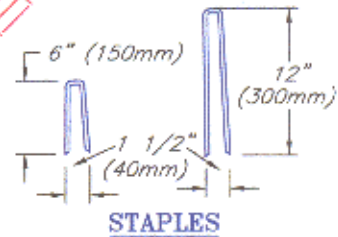


FILE: STRWANCH

MATS/BLANKETS SHOULD
BE INSTALLED VERTICALLY
DOWNSLOPE.



TYPICAL SLOPE SOIL STABILIZATION



NOT TO SCALE

EROSION BLANKETS & TURF REINFORCEMENT MATS SLOPE INSTALLATION

NOTES:

1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

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FILE: BLNK'SLP

